




Adel Taleb, Ph.D.

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Presentation


PhD in Computer Science with expertise in Machine Learning, Computer Vision, and Data Science, I have led several applied research projects in multidisciplinary environments, notably in collaboration with hospitals and research laboratories. Passionate about technological innovation, I am seeking new opportunities to contribute to the development of impactful solutions.

Work Experience

2020 – 2024  **CIFRE PhD Candidate** SogetiLabs (Capgemini)

- Technical Data Science Lead at Sogeti.
- Supervision of interns and apprentices.
- Preparation of the defense file for CIR audits.
- Participation in a European tender for the creation of an experimental third place between Sogeti and the Assistance Publique-Hôpitaux de Paris.
- Support for sales teams in responding to AI-related tenders.
- Set up and management of a team of 20 consultants (PO, Scrum Masters, developers) to carry out application development tasks within the research project:
 - Medical data storage platform
 - * Programming languages: NodeJS, React.
 - * Database: MongoDB.
 - Demonstrator showcasing the usage of research-developed models
 - * Programming languages: React, NodeJS, Python (Flask).
 - Secure data collection application
 - * Programming language: Svelte.js.
 - Engaged each team member in training data labeling for model development.
 - * Deployed tool: CVAT.

These projects were conducted using the **Scrum** project management framework and collaborative tools Azure DevOps and Figma.

2019 – 2020  **Data Scientist and Head of the Data/AI Department** SogetiLabs (Capgemini)

- Managed and participated in Data/AI projects at SogetiLabs.
- Conducted technical evaluations for data science and Python development candidates.
- Cognitive QA: Developed various NLP components of the CognitiveQA tool.
 - Programming language: Python.
 - Libraries: SpaCy, Pandas, Numpy.
 - Containerization and industrialization: Docker, Azure DevOps (Git, CI/CD).
- Contract anonymization project at Capgemini: Used deep learning techniques for entity recognition and anonymization of confidential contracts.
 - Programming language: Python.
 - Libraries: SpaCy, Pandas, Numpy, PyTorch.

These projects were conducted using the **Scrum** project management framework and Azure DevOps.

Work Experience (continued)

2018 – 2019 ■ **Apprentice Data Scientist** SogetiLabs (Capgemini)

- NLP R&D Project: Named entity recognition to build SPARQL queries from natural language in French, in collaboration with Institut Curie.
 - Programming language: Python.
 - Database: SPARQL.
- Quality Tracker: Tool for detecting and segmenting damaged car parts in photos (CNN, RCNN).
 - Programming language: Python.
 - Database: MongoDB.
 - Deployment: Docker, Azure DevOps (Git, CI/CD).
- R&D Project in collaboration with Hôpital de Garches: Developed a Deep Learning component to estimate wake-up time of comatose patients (time series classification using LSTM).
 - Programming language: Python.
 - Deep Learning Framework: PyTorch.

These projects were conducted using the **Scrum** project management framework and Azure DevOps.

Education

2020 – 2024 ■ **PhD in Computer Science, Statistics, and Cognition.** Université PSL, CHArt Laboratory.
Thesis Title: *Analysis of Motor Activity in Infants and Adults.*

- **Study of General Movements in Infants Using Machine Learning:** Conducted an advanced state-of-the-art review on general movements and extracted spatiotemporal descriptors using computer vision models based on CNN.
- **Adaptation of Pose Estimation Models for Infants:** Optimization of deep learning models (YOLO, AlphaPose, OpenPose) for pose detection and tracking in video data with a limited number of samples.
- **Development of a Classification Model for Spinal Muscular Atrophy and XAI:** Created a classification pipeline based on features extracted from movement sequences, integrating supervised learning methods (XGBoost, RF, SVM, MLP, Decision Tree) to provide a pre-diagnosis from videos, taking into account clinical acceptability through the implementation of explainability methods (XAI).
- **Biomechanical Analysis of Gait:** Introduced a new method based on dynamic movement analysis using barycenter, with an application to the automatic detection of hemiplegic gait in adults (patented method).
- Set up several data collection protocols in compliance with personal data protection requirements.
- Participated in the creation of the research platform R2P2.

2017 – 2019 ■ **Master's in Machine Learning for Data Science** Université Paris Descartes

- Measuring the quality of document embeddings (Text Mining).
- Implementation of a Generative Adversarial Network (GAN) for pseudo-labeling (Deep Learning).
- Deep learning for dimensionality reduction.
- AI4Eye Project: Designed a learning model for video image recognition and interpretation for visually impaired individuals, with near and far distance estimation.
- Developed a recommendation system based on user-based collaborative filtering and evaluated recommendation quality by applying different clustering methods and comparing clusters before and after recommendation.

Publications

Journal Articles

- 1 **A. Taleb**, P. Rambaud, S. Diop, *et al.*, "Spinal muscular atrophy hypotonia detection using computer vision and artificial intelligence," *JAMA pediatrics*, vol. 178, no. 5, pp. 500–502, 2024.

Conference Proceedings

- 1 **A. Taleb**, S. Diop, P. Rambaud, *et al.*, "Improve pose estimation model performance with unlabeled data," in *2023 Congress in Computer Science, Computer Engineering, & Applied Computing (CSCE)*, IEEE, 2023, pp. 1316–1321.
- 2 P. Rambaud, **A. Taleb**, R. Fauches, A. Rimmel, J. Tomasik, and J. Bergounioux, "Binary classification vs. anomaly detection on imbalanced tabular medical datasets," in *2023 Congress in Computer Science, Computer Engineering, & Applied Computing (CSCE)*, IEEE, 2023, pp. 01–05.

Patents

- 1 **A. Taleb**, J. Bergounioux, A. Perrier, F. Jouen, and R. Fauches, *The use of barycenters in dynamic movement analysis*, AP-HP, Europe, Patent granted by the European Patent Office, Oct. 2023.

Technical Skills

Languages	📖	English, French, and Arabic (reading, writing, and speaking)
Programming	📖	Python, R, C++, Java, \LaTeX .
Data Science	📖	Statistics, Supervised/Unsupervised Learning, Deep Learning (DNN, CNN, RNN/LSTM, LLM, GAN), NLP, Computer Vision, Time Series Prediction.
Databases	📖	MySQL, PostgreSQL, MongoDB, SQLite.
Web Development	📖	HTML, CSS, JavaScript, Apache Web Server, WordPress.
Miscellaneous.	📖	Academic Research, Scientific Writing, Git, Docker.

Soft skills

- 📖 Ability to adapt to change in a corporate environment.
- 📖 Ability to simplify technical terms.
- 📖 Ability to propose solutions.
- 📖 Strong analytical skills.
- 📖 Teamwork skills.

Refrees

- 📖 **Pr Jean Bergounioux** Head of Pediatric Intensive Care Unit at CHU Raymond Poincaré, PhD Supervisor.
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- 📖 **Raphael Fauches, PhD** Director of Research at Capgemini (2019–2023).
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